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HEAT SEALING DEVICE

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9 Claims. (Cl. 93—8)

My invention relates to the art of making bags of paper or other similar flexible material which has been previously coated on one or both sides with wax, paraffin, or a moisture proof coating of a similar nature in order to render it resistant or impervious to grease and moisture. More specifically my invention relates to an apparatus and a method for sealing bag bottoms formed by a bottom overlap of wax coated paper.

Many attempts have been made to devise proper machines for sealing the bottoms of wax coated paper bags, but, because of the inherent difficulties attendant in operating with a material of this nature, such machines have been for the large part commercially impractical.

It is necessary to apply sufficient heat so that the glue placed on the wax coated paper can penetrate down into the paper when the heat melts the wax to secure a proper joint. However, when pressure is applied directly on the heated spot, the glue is squeezed out so that a good joint cannot be secured. However, when pressure is not employed, a proper sealing of the bag cannot be effected, nor a true moisture proof seal be obtained.

I have devised a novel apparatus whereby I obtain an entire water and moisture proof seal of the bag bottoms and simultaneously effect a solid grip between the body of the bag and the overlap which forms the bag bottom.

My apparatus comprises a roll in which is placed a block having a cut out center portion, the block containing a heater preferably of the cartridge type which heats the entire block and is adapted to convey heat across the cut out section. This cut out block pressure unit is adapted to contact the bag bottom so that the cut out portion is superimposed over the glue line and the pressure portions of the block press on the adjacent areas to form a heat seal of the wax coated paper.

By means of this machine and its method of employment the bag bottom is well pressed during the heating operation so that a good heat seal is obtained, while, at the same time, sufficient heat is imparted to the glue and the wax surrounding it so that the wax melts and the glue can penetrate to the paper which it is desired to bond. Further, the pressure units that are adjacent the cut out portion prevent the squeezing out of the glue. The pressure block that presses on the extreme bottom of the bag may also be corrugated so that it crimps the extreme bottom of the bag thus providing a superior seal.

It is the object of my invention to provide a novel machine for effecting the heat sealing of wax coated paper.

It is a further object of my invention to provide a novel machine which effects the sealing of wax coated paper coated with glue by the simultaneous application of pressure to the non-glue areas and heat without pressure to the glue area.

It is a further object of my invention to provide a machine comprising a heated block having a cut out portion, the block adapted to press a bag bottom with the cut out portion being superimposed over the glue line of the bag bottom.

It is a further object of my invention to provide a novel machine comprising a roll carrying a pressure block heated by a cartridge heater, the pressure block having a cut out center portion, which cut out center portion is superimposed over the glue line of a bag bottom and the pressure portions of the block being superimposed over the non-glue areas of the bag bottom.

Further objects of my invention will be brought out in the following description of my invention.

In the drawings, Figure 1 is a combination cross-section and perspective view of the machine of my invention.

Figure 2 is a cross section taken along the line 2—2 of Figure 1.

Figure 3 shows the bag that is sealed with the machine of my invention.

Figure 4 is a cross-section taken along the line 4—4 of Figure 3 and shows in diagrammatic detail the folded over bag bottom with the glue line in relative position with respect to the pressure block shown in dotted lines.

Figure 5 is a perspective view of a modified form of a pressure block in reversed position to more clearly illustrate its structure. In this modified form there is a provision for crimping along the bottom of the bag.

Figure 6 is a perspective of a bag having a crimped bottom pressed by the crimping pressing block shown in Figure 5.

Referring now more specifically to the drawings, in Figure 1 is shown a bag 1 drawn forward by the advancing rolls 2 and 3 in the direction indicated by the arrow. The bottom of the bag 4 is shown at the forward position under the pressure block 10. Pressure block 10 is composed of the pressure portions 11 and 12 and the cut away portion 13. In the pressure block 10 is a cartridge heater 15 composed of the coil 16 wound around the insulated rod 17. Electricity